

ET 18223695845
10622

FLOW SCHEMATIC FOR FIELD SUPPLIED DATA ENTRY AND BASE STATION
OR SERVICE PROVIDER SUPPLIED COMPUTER ASSISTANCE

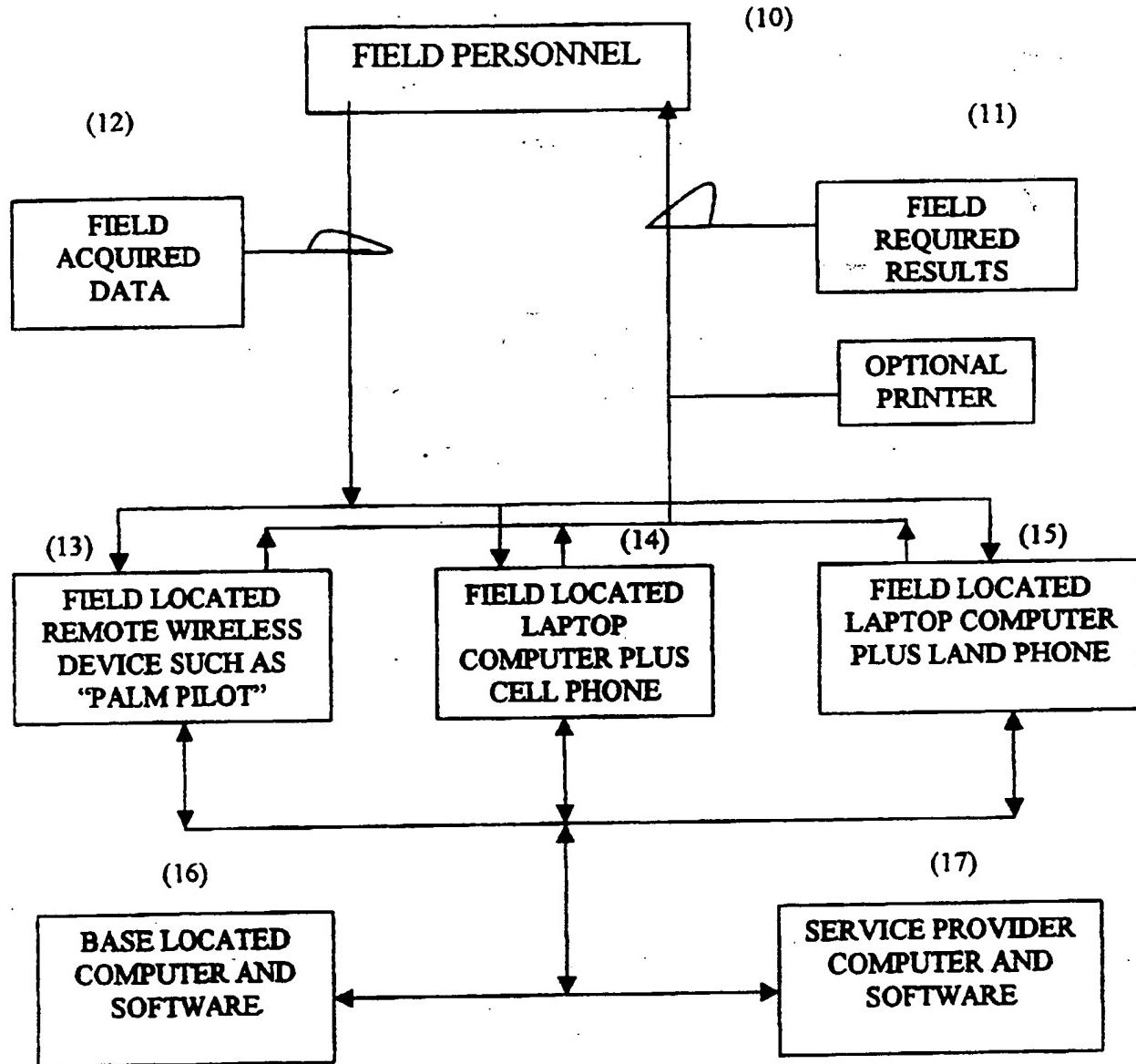


FIG. 1

PROGRAMS (18)

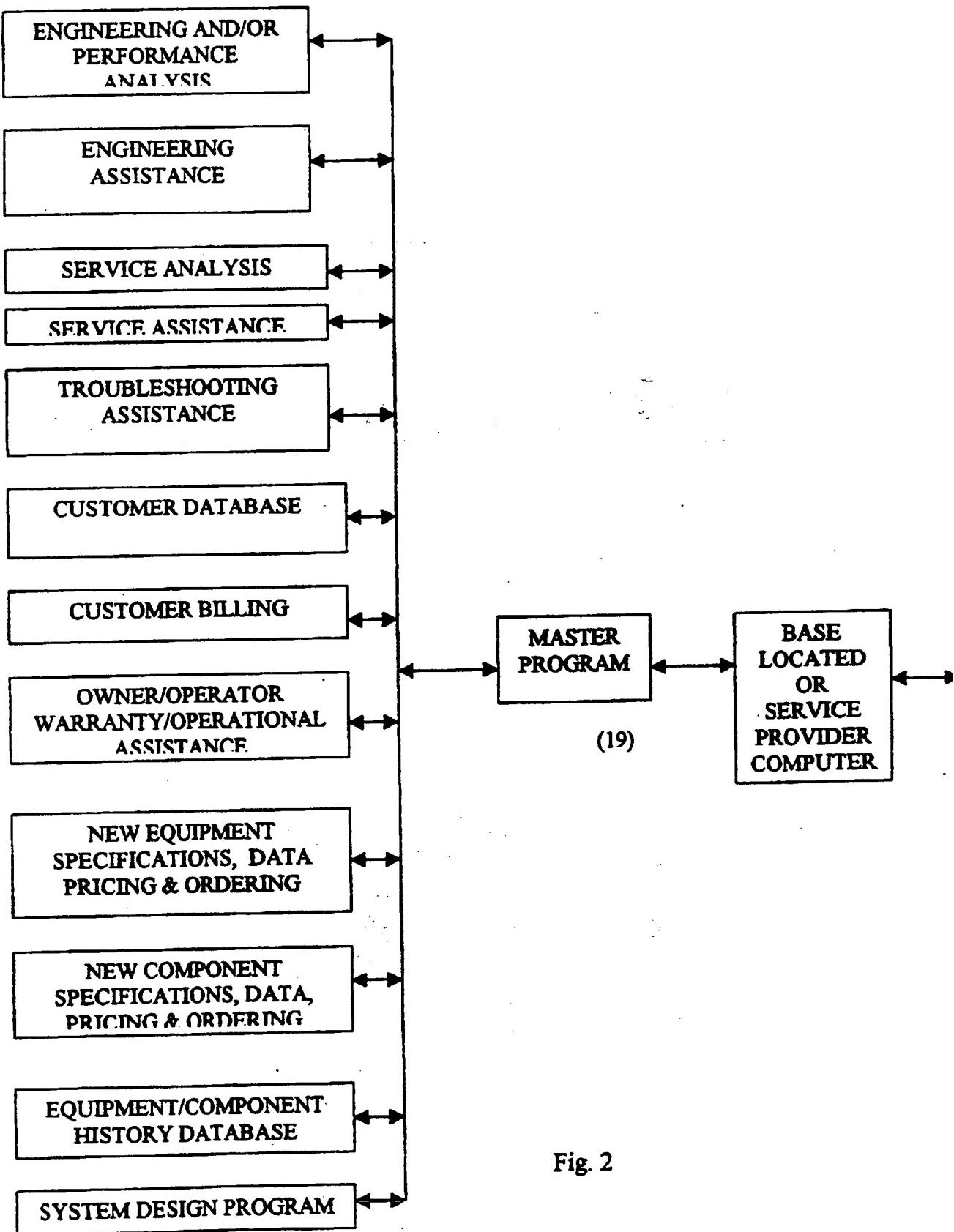


Fig. 2

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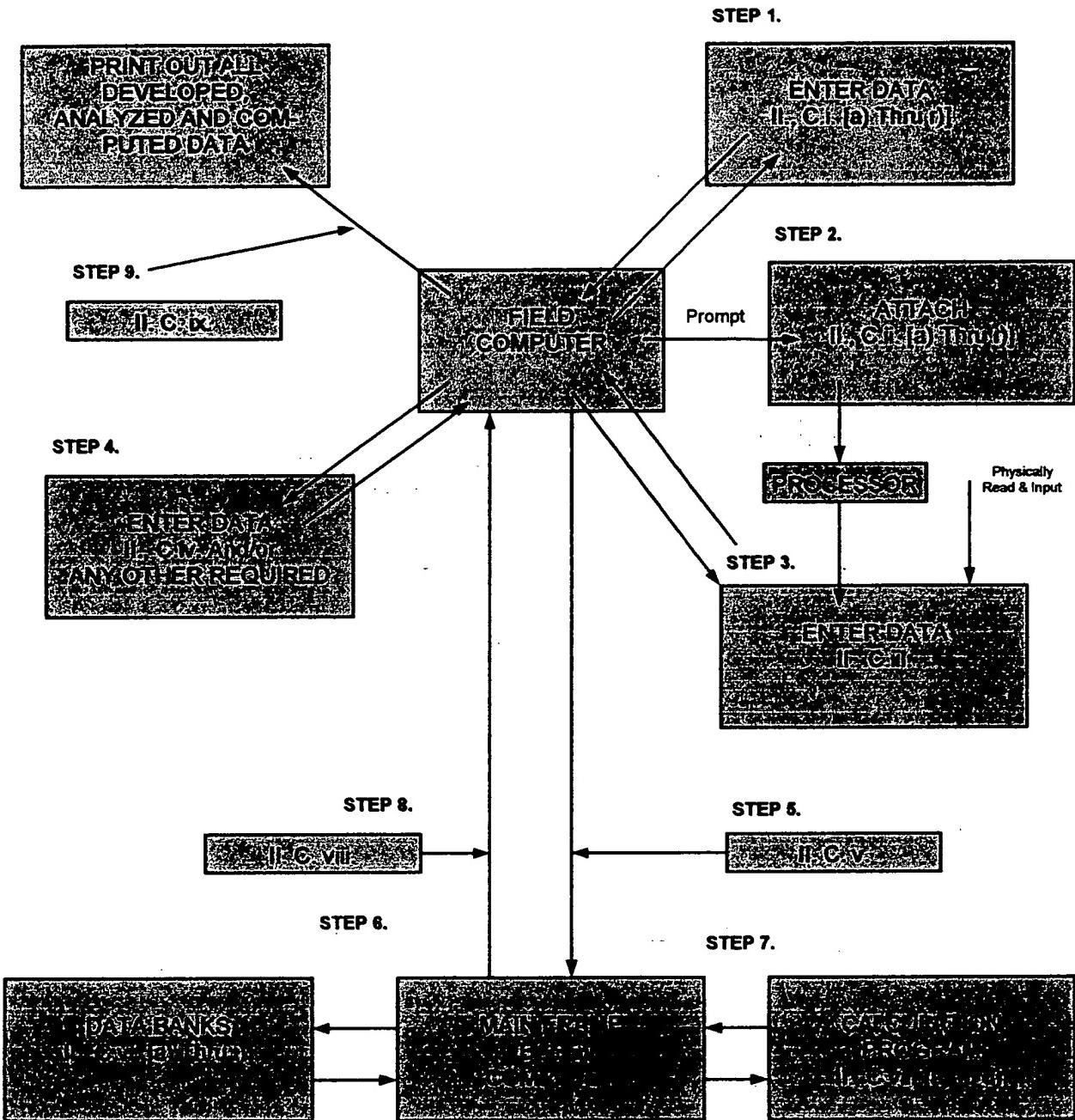


FIG. 3

I. AVAILABLE INFORMATION DATA SHEET:

PART A

TYPE OF ANALYSIS (X which applies):

Perf Trblshg T & B

Job Name:

Phone: **Fax:**

Job Address: **city:**

state: **zip:**

Other: (e-mail) **other:**

Date: **Start Time:** **Air-cooled (X)** **Water-cooled (X)**

Refrigerant Type: **Unit Number or Specific Location:**

Type of System (X): **Chiller** **Package** **Split** **A/C** **H/P** **Refrig**

PART B

manuf	quantity	model no	serial no	fan speed
Package System				
Chiller/Condenser				
Fan Coil Unit :				
Split System Condenser				
A/C				
Split System Condenser				
H/P				
Split System Air Handler				
Refrigeration Unit Condenser				
Refrigeration Unit Evaporator				

DATA PLATE INFORMATION

Condenser Fan Motor

Blower Fan Motor

Compressor No 1

Compressor No 2

Compressor No 3

Compressor No 4

mfg	model no	serial no	hp	rpm	FLA/RLA	LRA	volt	phase	hz

Main Supply Plenum Dimensions

Previous Month Electrical Consumption (Kw)

Previous Month System Water Consumption (Gals)

Previous Month Gas Consumption (Cu Ft)

Return Plenum Dim	Total Cost (\$)

Total Cost (\$)	Total Cost (\$)	Total Cost (\$)

FIG - 4a

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II. Miscellaneous Data Sheet

Condition of:

Condenser Coil

Evaporator Coil

Cabinetry AH

Cabinetry Cond

Ductwork

Liquid Line Dryer

Eiquia™ EMI Dryer Suction Line Dryer

Suction Line Dryer Suction Accumulator

Liquid Receiver

Eiquid Reverser Reversing Valve

Reversing Valve Expansion Device

Expansion Devices Refrigerant Lines

Refrigerant Lines Condenser Fan Motor

Condenser Fan Motor

Condenser Fan Blade

Evaporator Blower Motor

Evaporator Blower Sh

Evaporator Blower Bear

Evaporator Blow

Evaporator Electrical W

Capacitors

Customer Contact

Relays

Relays Transformers

Other Component (input below)

Obvious Oil Leak Locations

10. *Leucosia* *leucostoma* *leucostoma* *leucostoma* *leucostoma*

FIG. 4b

III. OPERATIONAL DATA SHEET:

Temperatures, Refrigerant (X which applies)	Fahrenheit	Celsius
Hot Gas Discharge at Compressor		
Hot Gas Entering Condenser		
Mid Condenser Coil		
Liquid out of condenser		
Liquid into expansion device		
Mid Evaporator coil		
Suction line after evaporator		
Suction line into compressor		
Heat Pump, Suction line into rev Valve		
Heat Pump, Hot Gas line into rev Valve		

Temperatures, Air (X which applies)	Fahrenheit	Celsius
Air Entering Condenser	DB	
Air Entering Condenser	WB	
Air Exiting Condenser	DB	
Air Entering Evaporator	DB	
Air Entering Evaporator	WB	
Air Exiting Evaporator	DB	
Air Exiting Evaporator	WB	
Air Exiting Air Handler	DB	
Air Exiting Air Handler	WB	

Pressures, Refrigerant (X which applies)	PSIG	PSIA
Hot Gas Discharge @ compressor		
Hot Gas Discharge @ condenser		
Liquid Refrigerant exit condenser		
Liquid Refrigerant enter Exp Device		
Suction Gas exiting evaporator		
Suction Gas entering compressor		

Pressures, Air Flow (in inches water gauge)

Static before Air Handler	
Static after Air Handler	
Velocity pressure Transverse Avg at straight duct section with dimensions given for main supply or return plenums	

Electrical Data (Running)

	Amps	Volts	Phase	hz
	L1	L2	L3	
Compressor No 1				
Compressor No 2				
Compressor No 3				
Compressor No 4				
Condenser Fan Motors				
Quantity				
Blower Motors				
Quantity				
Pumps - Chiller Circ	1			
	2			
Evaporative Tower	1			
	2			
Water Cooled Circ	1			
	2			

Temperatures, Water (X which applies)	Fahrenheit	Celsius
Chiller	EWT	
	LCWT	
Water Cooled Condenser	EWT	
	LWT	

Water Flow Rate (X which applies)	PSIG	PSIA
Chiller, Evaporator Return Line		
Chiller, Evaporator Supply Line		
Water Cooled Equip		
Condenser Return Line		
Condenser Supply Line		

Fig. 4c

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IV. TROUBLE SHOOTING QUESTIONNAIRE DATA SHEET

Mark all those that apply (X)

Chiller Condenser

Air Cooled

Water Cooled

Geothermal

Dual Source

Symptom (examples - list to be added to)

Unit will not run

Outdoor unit section will not run

Compressor will not start

Outdoor fan motor will not start

Outdoor unit condenser water pump will not start

Compressor hums but will not start

Compressor cycling on overload

Compressor off on high pressure control

Noisy compressor

Compressor loses oil

No cooling, but compressor runs continuously

Liquid Refrigerant flooding compressor (cap tube system)

Liquid Refrigerant flooding compressor (fixed orifice)

Liquid Refrigerant flooding compressor (TXV)

High head pressure

Low head pressure

High Suction Pressure

Low suction pressure

High operating costs

Other

↓

↓

Water Tower

Symptom (examples - list to be added to)

Fan motor will not run

Cooling return water temperature high

Scale buildup is rapid

Sump water hardness is high

Other

↓

↓

Fan Coil Unit

Symptom (examples - list to be added to)

Fan motor will not run

No cooling, but fan is on

Too much cooling

Other

Fig. 4d

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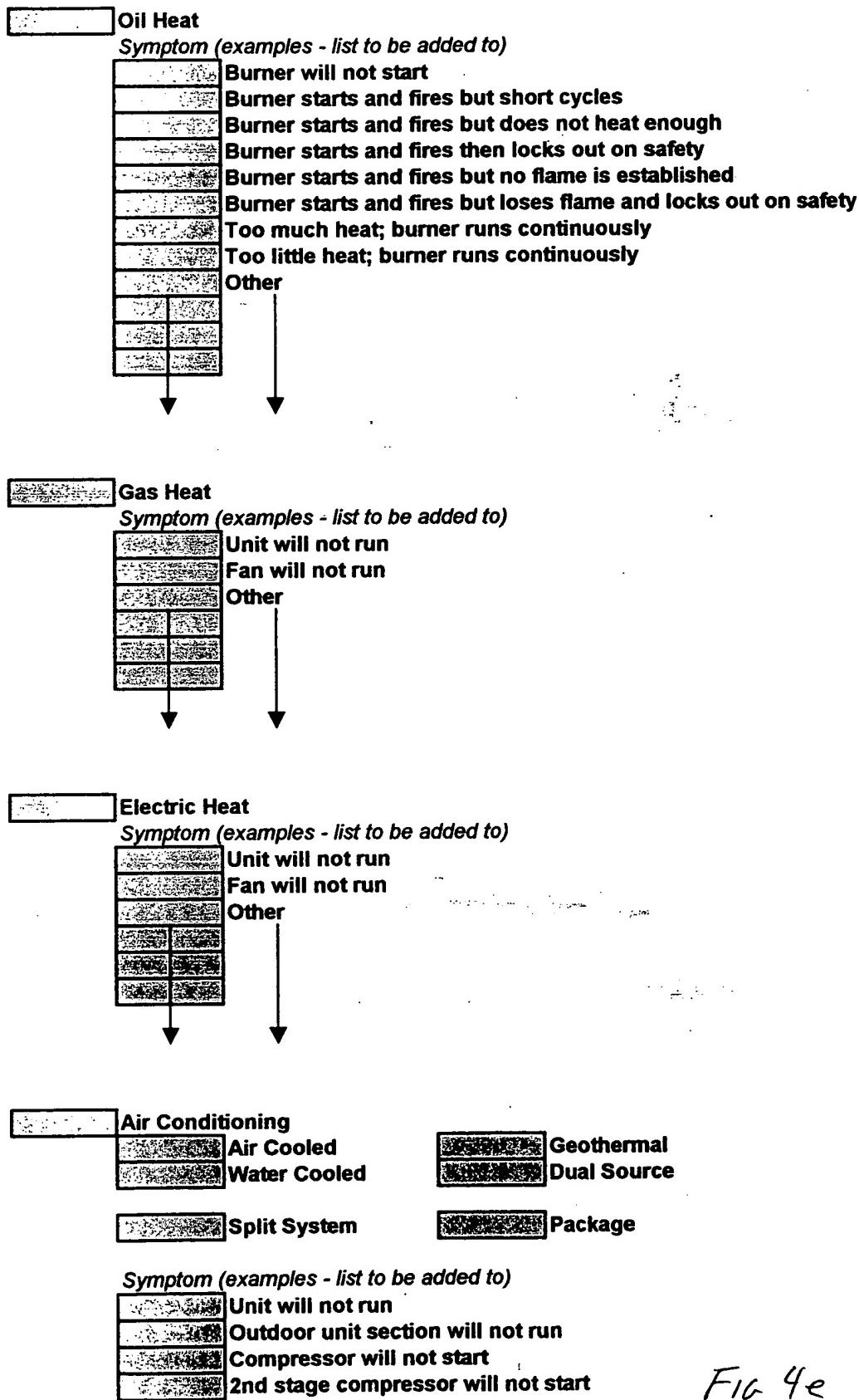
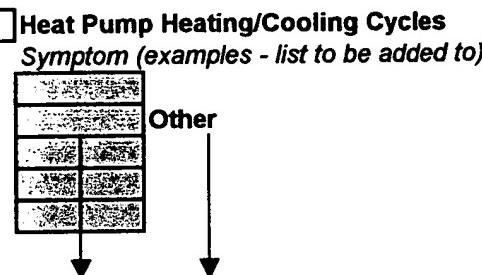
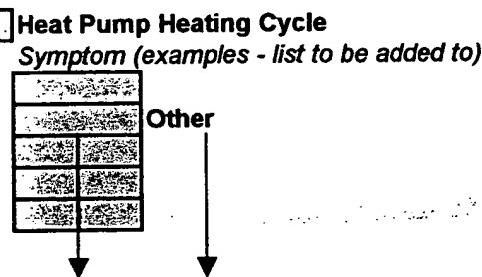
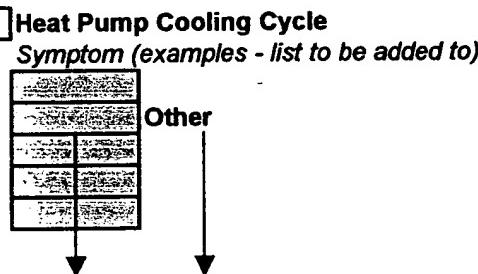
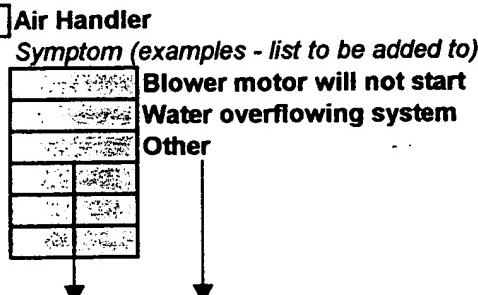
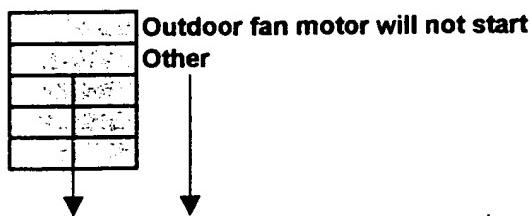


Fig 4e

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Refrigeration

High Temp
Medium Temp

Low Temp
Ultra Low Temp

Fig 4f

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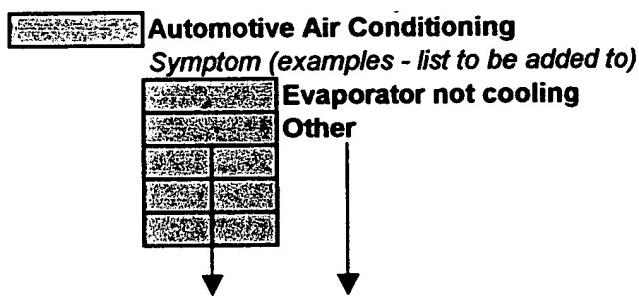
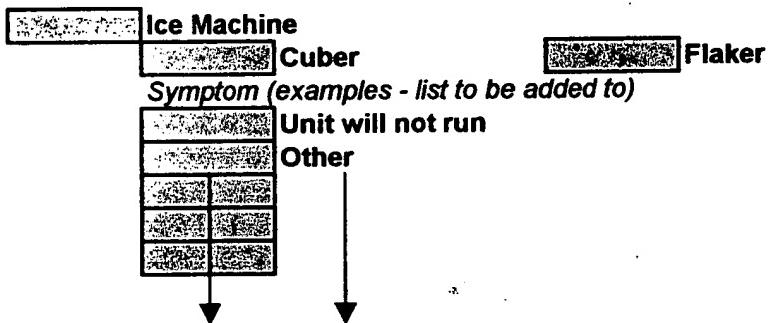
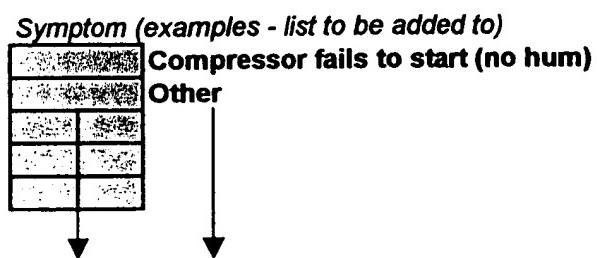


FIG. 4g

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V. TEST AND BALANCE - AIR VOLUME DATA SHEET

A. *Mark all those that apply (X)*

<input type="checkbox"/>	Constant volume system
<input checked="" type="checkbox"/>	VAV System
<input type="checkbox"/>	Other
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

↓ ↓

B. *Fill in all appropriate (highlighted) below:*

Example:

<input checked="" type="checkbox"/>	Design Air Flow VAV #1
<input type="checkbox"/>	Other
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	

↓ ↓

Fig. 4h

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III. OPERATIONAL DATA SHEET:

Temperatures, Refrigerant (X which applies)	Fahrenheit	Celsius
<u>Hot Gas Discharge at Compressor</u>		
Hot Gas Entering Condenser		
Mid Condenser Coil		
<u>Liquid out of condenser</u>		
<u>Liquid into expansion device</u>		
Mid Evaporator coil		
Suction line after evaporator		
<u>Suction line into compressor</u>		
Heat Pump, Suction line into rev Valve		
Heat Pump, Hot Gas line into rev Valve		

Temperatures, Air (X which applies)	Fahrenheit	Celsius
<u>Air Entering Condenser</u>	DB	
Air Entering Condenser	WB	
Air Exiting Condenser	DB	
<u>Air Entering Evaporator</u>	DB	
Air Entering Evaporator	WB	
Air Exiting Evaporator	DB	
Air Exiting Evaporator	WB	
<u>Air Exiting Air Handler</u>	DB	
Air Exiting Air Handler	WB	

Pressures, Refrigerant (X which applies)	PSIG	PSIA
<u>Hot Gas Discharge @ compressor</u>		
Hot Gas Discharge @ condenser		
<u>Liquid Refrigerant exit condenser</u>		
<u>Liquid Refrigerant enter Exp Device</u>		
Suction Gas exiting evaporator		
Suction Gas entering compressor		

Pressures, Air Flow (in inches water gauge)

Static before Air HandlerStatic after Air HandlerVelocity pressure Transverse Avg. at straight duct section with dimensions given for main supply or return plenums

Electrical Data (Running)

	Amps	Volts	Phase	hz
	L1	L2	L3	
Compressor No 1				
Compressor No 2				
Compressor No 3				
Compressor No 4				
Condenser Fan Motors				
Quantity				
Blower Motors				
Quantity				
Pumps - Chiller Circ	1			
	2			
Evaporative Tower	1			
	2			
Water Cooled Circ	1			
	2			

Temperatures, Water
(X which applies)

	Fahrenheit	Celsius
Chiller	EWT	
	LCWT	

Water Cooled Condenser

	EWT	
	LWT	

Water Flow Rate

(X which applies)

Chiller, Evaporator	Return Line
Chiller, Evaporator	Supply Line
Water Cooled Equip	
Condenser	Return Line
Condenser	Supply Line

PSIG

PSIA

FIG. 5b

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III. OPERATIONAL DATA SHEET:

Temperatures, Refrigerant (X which applies)	Fahrenheit	Celsius
Hot Gas Discharge at Compressor	200	
Hot Gas Entering Condenser		
Mid Condenser Coil		
Liquid out of condenser	124	
Liquid into expansion device	124	
Mid Evaporator coil		
Suction line after evaporator		
Suction line into compressor	75	
Heat Pump, Suction line into rev Valve		
Heat Pump, Hot Gas line into rev Valve		

Pressures, Refrigerant (X which applies)	PSIG	PSIA
Hot Gas Discharge @ compressor	X	
Hot Gas Discharge @ condenser		N.A.
Liquid Refrigerant exit condenser		275
Liquid Refrigerant enter Exp Device		N.A.
Suction Gas exiting evaporator		
Suction Gas entering compressor		58

Electrical Data (Running)	Amps	Volts	Phase	hz		
	L1	L2	L3			
Compressor No 1	22.2	22.0	—	232	1	60
Compressor No 2						
Compressor No 3						
Compressor No 4						
Condenser Fan Motors	1.6	1.7	—	232	1	60
Blower Motors	3.5	3.6	—	232	1	60
Pumps - Chiller Circ	1					
	2					
Evaporative Tower	1					
	2					
Water Cooled Circ	1					
	2					

Temperatures, Water (X which applies)	Fahrenheit	Celsius
Chiller	EWT	
Water Cooled Condenser	LCWT	
	EWT	
	LWT	

Temperatures, Air (X which applies)	Fahrenheit	Celsius
Air Entering Condenser	X	92
Air Entering Condenser	DB	
Air Exiting Condenser	WB	
Air Entering Evaporator	DB	75.0
Air Entering Evaporator	WB	65.0
Air Exiting Evaporator	DB	N.A.
Air Exiting Evaporator	WB	N.A.
Air Exiting Air Handler	DB	59.0
Air Exiting Air Handler	WB	58.4

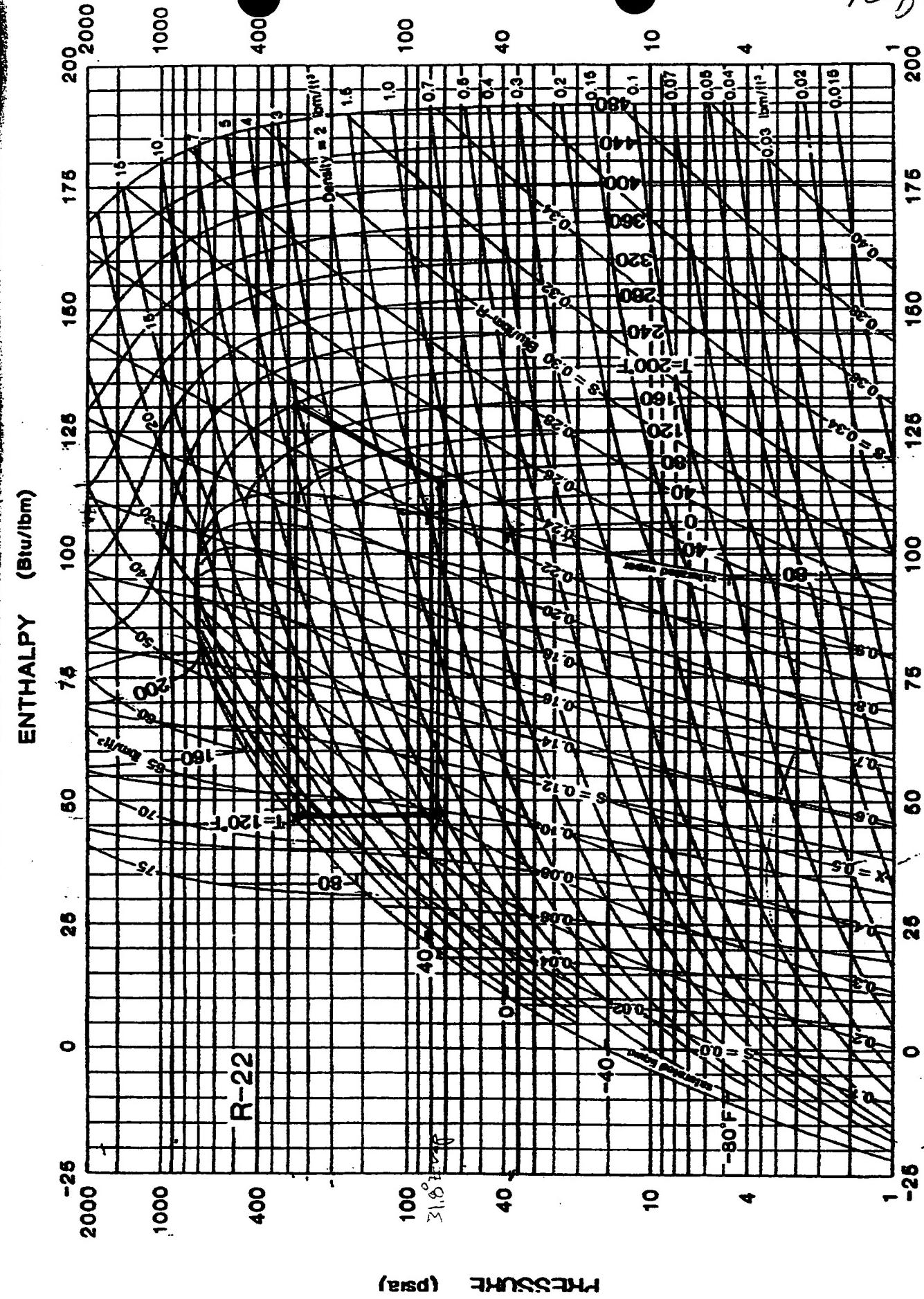
Pressures, Air Flow (in inches water gauge)

Static before Air Handler	-15
Static after Air Handler	+25
Velocity pressure Transverse Avg at straight duct section with dimensions given for main supply or return plenums	.033

Water Flow Rate (X which applies)	PSIG	PSIA
Chiller, Evaporator Return Line		
Chiller, Evaporator Supply Line		
Water Cooled Equip		
Condenser Return Line		
Condenser Supply Line		

FIG. 6b

T D 9 0 9 8 0 " 1 6 1 5 1 6 1 4 1 2 6 6 0



Thermophysical Properties of Refrigerants

Refrigerant 22 (Chlorodifluoromethane) Properties of Saturated Liquid and Saturated Vapor

Temp., °F Pressure, psia	Density, Volume, lb/ft³		Enthalpy, Btu/lb		Entropy, Btu/lb·°F		Specific Heat c_p , Btu/lb·°F		Velocity of Sound, ft/s		Viscosity, lb/in·ft·h		Thermal Cond. Btu/lb·ft·°F		Surface Tension, Temp., °F		
	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	Liquid	Vapor	dynes/cm	°F	
-250.00	—	107.37	—	-63.169	76.604	-0.21914	0.44952	—	0.1018	1.2914	—	395.	—	—	—	-250.00	
-240.00	—	106.41	—	-56.462	77.629	-0.18786	0.42332	—	0.1033	1.2860	—	403.	—	—	—	-240.00	
-230.00	—	105.48	—	-51.569	78.669	-0.16605	0.40101	—	0.1048	1.2807	—	411.	—	—	—	36.75 -230.00	
-220.00	0.002	104.58	16805.	-47.705	79.724	-0.14958	0.38211	—	0.1064	1.2754	—	419.	—	—	—	35.70 -220.00	
-210.00	0.004	103.70	6982.6	-44.426	80.796	-0.13616	0.36538	—	0.1080	1.2703	—	427.	—	—	—	34.67 -210.00	
-200.00	0.010	102.81	3151.5	-41.474	81.882	-0.12457	0.35048	—	0.1096	1.2653	—	435.	—	—	—	33.63 -200.00	
-190.00	0.022	101.92	1527.4	-38.705	82.984	-0.11411	0.33715	—	0.1113	1.2604	—	442.	—	—	—	32.61 -190.00	
-180.00	0.044	101.03	787.79	-36.038	84.100	-0.10439	0.32518	—	0.1130	1.2558	—	449.	—	—	—	31.59 -180.00	
-170.00	0.084	100.12	429.22	-33.424	85.230	-0.09521	0.31441	—	0.1147	1.2515	—	456.	—	—	—	30.58 -170.00	
-160.00	0.151	99.22	245.51	-30.839	86.373	-0.08644	0.30470	—	0.1165	1.2474	—	463.	—	—	—	29.57 -160.00	
-150.00	0.262	98.30	146.65	-28.269	87.528	-0.07800	0.29594	—	0.1183	1.2437	—	470.	—	—	—	28.57 -150.00	
-140.00	0.435	97.38	91.059	-25.708	88.692	-0.06984	0.28801	—	0.1201	1.2403	—	476.	—	—	—	27.57 -140.00	
-130.00	0.696	96.46	58.544	-23.150	89.864	-0.06198	0.28082	—	0.1221	1.2374	—	482.	—	—	—	26.59 -130.00	
-120.00	1.080	95.53	38.833	-20.594	91.040	-0.05435	0.27430	0.2555	0.1241	1.2349	3483.	488.	—	—	25.61 -120.00		
-110.00	1.626	94.60	26.494	-18.038	92.218	-0.04694	0.26838	0.2555	0.1262	1.2329	3384.	494.	—	0.0765	—	24.64 -110.00	
-100.00	2.384	93.66	18.540	-15.481	93.397	-0.03973	0.26298	0.2557	0.1285	1.2315	3290.	500.	—	—	0.0749	—	23.67 -100.00
-90.00	3.413	92.71	13.275	-12.921	94.572	-0.03271	0.25807	0.2561	0.1308	1.2307	3198.	505.	—	—	0.0734	0.00292	22.71 -90.00
-80.00	4.778	91.75	9.7044	-10.355	95.741	-0.02587	0.25357	0.2567	0.1334	1.2305	3110.	510.	—	—	0.0718	0.00315	21.76 -80.00
-70.00	6.555	90.79	7.2285	-7.783	96.901	-0.01919	0.24945	0.2574	0.1361	1.2310	3023.	514.	—	—	0.0703	0.00338	20.82 -70.00
-60.00	8.830	89.81	5.4766	-5.201	98.049	-0.01266	0.24567	0.2584	0.1389	1.2323	2937.	519.	—	—	0.0688	0.00360	19.89 -60.00
-50.00	11.696	88.83	4.2138	-2.608	99.182	-0.00627	0.24220	0.2596	0.1420	1.2344	2852.	522.	—	—	0.0673	0.00382	18.96 -50.00
-45.00	13.383	88.33	3.7160	-1.306	99.742	-0.00312	0.24056	0.2604	0.1436	1.2358	2810.	524.	—	—	0.0665	0.00393	18.50 -45.00
-41.446	14.696	87.97	3.4048	-0.377	100.138	-0.00090	0.23944	0.2609	0.1448	1.2369	2780.	525.	—	—	0.0660	0.00401	18.18 -41.44
-40.00	15.255	87.82	3.2880	0.000	100.296	0.00000	0.23899	0.2611	0.1453	1.2374	2768.	526.	—	—	0.0658	0.00404	18.05 -40.00
-35.00	17.329	87.32	2.9185	1.310	100.847	0.00309	0.23748	0.2620	0.1471	1.2393	2725.	527.	—	—	0.0651	0.00414	17.59 -35.00
-30.00	19.617	86.81	2.5984	2.624	101.391	0.00616	0.23602	0.2629	0.1489	1.2414	2683.	529.	—	—	0.0643	0.00425	17.14 -30.00
-25.00	22.136	86.29	2.3202	3.944	101.928	0.00920	0.23462	0.2638	0.1507	1.2437	2641.	530.	—	—	0.0636	0.00435	16.69 -25.00
-20.00	24.899	85.77	2.0774	5.268	102.461	0.01222	0.23327	0.2648	0.1527	1.2463	2599.	531.	—	—	0.0629	0.00445	16.24 -20.00
-15.00	27.924	85.25	1.8650	6.598	102.986	0.01521	0.23197	0.2659	0.1547	1.2493	2557.	532.	—	—	0.0622	0.00456	15.79 -15.00
-10.00	31.226	84.72	1.6784	7.934	103.503	0.01818	0.23071	0.2671	0.1567	1.2525	2515.	533.	—	—	0.0614	0.00466	— -10.00
-5.00	34.821	84.18	1.5142	9.276	104.013	0.02113	0.22949	0.2684	0.1589	1.2792	2262.	536.	—	—	0.0607	0.00476	— -5.00
0.00	38.726	83.64	1.3691	10.624	104.515	0.02406	0.22832	0.2697	0.1611	1.2599	2431.	535.	0.615	0.0268	0.0600	0.00486	— 0.00
5.00	42.960	83.09	1.2406	11.979	105.009	0.02697	0.22718	0.2710	0.1634	1.2641	2389.	535.	0.597	0.0271	0.0593	0.00496	— 5.00
10.00	47.538	82.54	1.1265	13.342	105.493	0.02987	0.22607	0.2725	0.1658	1.2687	2346.	535.	0.580	0.0274	0.0586	0.00506	— 10.00
15.00	52.480	81.98	1.0250	14.712	105.968	0.03275	0.22500	0.2740	0.1683	1.2737	2304.	536.	0.563	0.0276	0.0579	0.00516	— 15.00
20.00	57.803	81.41	0.9343	16.090	106.434	0.03561	0.22395	0.2756	0.1709	1.2792	2262.	536.	0.546	0.0279	0.0572	0.00526	— 20.00
25.00	63.526	80.84	0.8532	17.476	106.891	0.03846	0.22294	0.2773	0.1737	1.2851	2219.	536.	0.530	0.0282	0.0566	0.00536	— 25.00
30.00	69.667	80.26	0.7804	18.871	107.336	0.04129	0.22195	0.2791	0.1765	1.2915	2177.	536.	0.515	0.0284	0.0559	0.00546	— 30.00
35.00	76.245	79.67	0.7150	20.275	107.769	0.04411	0.22098	0.2809	0.1794	1.2984	2134.	535.	0.499	0.0287	0.0552	0.00555	— 35.00
40.00	83.280	79.07	0.6561	21.688	108.191	0.04692	0.22004	0.2829	0.1825	1.3059	2091.	535.	0.484	0.0290	0.0545	0.00565	— 40.00
45.00	90.791	78.46	0.6029	23.111	108.600	0.04972	0.21912	0.2849	0.1857	1.3141	2048.	534.	0.470	0.0292	0.0538	0.00575	— 45.00
50.00	98.799	77.84	0.5548	24.544	108.997	0.05251	0.21821	0.2870	0.1891	1.3229	2005.	533.	0.456	0.0295	0.0532	0.00584	— 50.00
55.00	107.32	77.22	0.5111	25.988	109.379	0.05529	0.21732	0.2893	0.1927	1.3324	1962.	532.	0.442	0.0298	0.0525	0.00594	— 55.00
60.00	116.38	76.58	0.4715	27.443	109.748	0.05806	0.21644	0.2916	0.1964	1.3428	1919.	531.	0.429	0.0301	0.0518	0.00604	— 60.00
65.00	126.00	75.93	0.4355	28.909	110.103	0.06082	0.21557	0.2941	0.2003	1.3540	1876.	530.	0.416	0.0303	0.0512	0.00613	— 65.00
70.00	136.19	75.27	0.4026	30.387	110.441	0.06358	0.21472	0.2967	0.2045	1.3663	1832.	528.	0.404	—	0.0305	0.00623	— 70.00
75.00	146.98	74.60	0.3726	31.877	110.761	0.06633	0.21387	0.2994	0.2089	1.3796	1788.	527.	0.392	—	0.0299	0.00632	— 75.00
80.00	158.40	73.92	0.3451	33.381	111.066	0.06907	0.21302	0.3024	0.2135	1.3941	1744.	525.	0.380	—	0.0292	0.00642	— 80.00
85.00	170.45	73.22	0.3199	34.898	111.350	0.07182	0.21218	0.3055	0.2185	1.4100	1700.	523.	0.369	—	0.0285	0.00652	— 85.00
90.00	183.17	72.51	0.2958	36.430	111.616	0.07456	0.21134	0.3088	0.2238	1.4275	1655.	520.	0.358	—	0.0279	0.00661	— 90.00
95.00	196.57	71.79	0.2756	37.977	111.859	0.07730	0.21050	0.3123	0.2295	1.4467	1611.	518.	0.348	—	0.0273	0.00671	— 95.00
100.00	210.69	71.05	0.2560	39.538	112.081	0.08003	0.20965	0.3162	0.2356	1.4678	1566.	515.	0.338	—	0.0266	0.00680	— 100.00
105.00	225.53	70.29	0.2379	41.119	112.278	0.08277	0.20879	0.3203	0.2422	1.4912	1520.	512.	—	—	0.0260	0.00690	— 105.00
110.00	241.14	69.51	0.2212	42.717	112.448	0.08552	0.20793	0.3248	0.2495	1.5173	1474.	509.	—	—	0.0254	0.00699	— 110.00
115.00	257.52	68.71	0.2058	44.334	112.591	0.08827	0.20705	0.3298	0.2573	1.5464	1428.	506.	—	—			

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TABLE 6-6

Superheated Vapor — Constant Pressure Tables at Pressure Intervals — R-22

V = volume in cuft/lb; H = enthalpy in Btu/lb; S = entropy in Btu(lb)°R (saturation properties in parentheses)

(+) 1
TL-7

Temp. °F	Absolute Pressure lb/sq in.														
	75			80			85			90					
	60.304 PSIG (34.13 F)		65.304 PSIG (37.76 F)		70.304 PSIG (41.22 F)		75.304 PSIG (44.53 F)		80.304 PSIG (47.71 F)						
V	H	S	V	H	S	V	H	S	V	H	S	V	H	S	
(0.72740)	(107.644)	(0.22098)	(0.68318)	(107.954)	(0.22029)	(0.64398)	(108.244)	(0.21964)	(0.60897)	(108.516)	(0.21903)	(0.57751)	(108.772)	(0.21845)	
40	0.74013	108.862	0.22303	0.66782	108.347	0.22107	—	—	—	—	—	—	—	—	
50	0.78148	110.393	0.22645	0.70622	110.098	0.22454	0.66115	109.799	0.22272	0.61924	109.496	0.22096	0.58165	109.187	0.21928
60	0.78241	112.119	0.22981	0.72820	111.843	0.22793	0.68030	111.564	0.22614	0.63766	111.280	0.22443	0.55944	110.932	0.22277
70	0.80298	113.842	0.23309	0.74780	113.584	0.23125	0.69908	113.322	0.22949	0.65568	113.056	0.22781	0.61681	112.787	0.22819
80	0.82323	115.566	0.23632	0.76708	115.323	0.23450	0.71748	115.076	0.23278	0.67334	114.827	0.23112	0.63381	114.575	0.22953
90	0.84320	117.291	0.23948	0.78605	117.061	0.23770	0.73559	116.829	0.23599	0.69069	116.594	0.23437	0.65048	116.357	0.23281
100	0.86291	119.019	0.24260	0.80477	118.801	0.24083	0.75343	118.582	0.23915	0.70777	118.360	0.23755	0.68687	118.137	0.23002
110	0.88239	120.749	0.24588	0.82325	120.544	0.24392	0.77104	120.336	0.24226	0.72459	120.127	0.24068	0.66301	119.915	0.23917
120	0.90167	122.485	0.24888	0.84152	122.290	0.24696	0.78842	122.093	0.24532	0.74120	121.894	0.24376	0.68692	121.694	0.24228
130	0.92076	124.226	0.25168	0.85960	124.040	0.24995	0.80561	123.853	0.24833	0.75780	123.665	0.24678	0.71462	123.475	0.24631
140	0.93968	125.973	0.25460	0.87751	125.796	0.25290	0.82263	125.618	0.25130	0.77393	125.439	0.24977	0.73015	125.259	0.24831
150	0.95844	127.726	0.25750	0.89526	127.558	0.25582	0.83948	127.389	0.25422	0.78969	127.218	0.25271	0.74550	127.047	0.25128
160	0.97707	129.487	0.26036	0.91286	129.326	0.25869	0.85619	129.165	0.25711	0.80581	129.002	0.25561	0.76071	128.839	0.25418
170	0.99557	131.255	0.26319	0.93034	131.102	0.26154	0.87277	130.948	0.25997	0.82159	130.793	0.25848	0.77578	130.637	0.25706
180	1.0139	133.032	0.26599	0.94770	132.885	0.28435	0.88923	132.738	0.26279	0.83725	132.589	0.26131	0.79073	132.440	0.25930
190	1.0322	134.817	0.26876	0.96495	134.677	0.26712	0.90556	134.535	0.26558	0.85279	134.393	0.26411	0.80566	134.251	0.26271
200	1.0504	136.611	0.27150	0.98209	136.476	0.26987	0.92182	136.341	0.26833	0.88824	136.205	0.26687	0.82029	136.068	0.26548
210	1.0685	138.414	0.27421	0.99915	138.284	0.27259	0.93797	138.154	0.27106	0.88359	138.024	0.26961	0.83492	137.893	0.26823
220	1.0865	140.226	0.27690	1.0161	140.101	0.27529	0.95404	139.977	0.27376	0.89885	139.851	0.27232	0.84948	139.725	0.27094
230	1.1044	142.047	0.27958	1.0330	141.928	0.27795	0.97003	141.808	0.27844	0.92403	141.887	0.27500	0.86393	141.566	0.27363

FIG. 8

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PERFORMANCE TABLE

BRISTOL COMPRESSORS
MODEL H25A56QCBC 60Hz

REFRIGERANT : R22
DISPLACEMENT : 5.46 CUBIC INCHES
MOTOR : 2 -POLE
VOLTAGE : 230-1-60
SUBCOOLING : 15.0 deg F
SUPERHEAT : 20.0 deg F

Release EN: A29905
Revision EN: B15908 Date: 7/94
Preliminary Data

CAPACITY (BTU/HR)

EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	
80	12512	15425	18645	22184	26057	30279	34864	39825	45178	50936	57113	63724	70782	78303	83700	88375	
90	11331	14025	17018	20325	23960	27937	32271	36975	42064	47552	53453	59782	66553	73779	81176	89051	
100	10079	12554	15322	18398	21796	25530	29614	34063	38890	44110	49737	55785	62269	69203	76600	84475	
CONDENSING	110		11057	13602	16449	19611	23103	26939	31134	35700	40654	46008	51777	57976	64618	71717	79288
TEMPERATURE	120				14520	17448	20700	24290	28231	32539	37227	42310	47802	53717	60068	66872	74141
deg F	130						18365	21710	25400	29450	33875	38688	43903	49536	55599	62108	69076
	140								22684	26478	30641	35185	40126	45478	51254	57469	64138
	150										31846	36514	41586	47077	53000	59371	

POWER (WATTS)

EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	
80	2163	2319	2465	2599	2721	2830	2925	3005	3071	3121	3155	3172	3171	3153			
90	2231	2404	2566	2719	2860	2990	3108	3213	3304	3382	3444	3492	3523	3538			
100	2271	2459	2640	2812	2974	3127	3268	3399	3518	3624	3716	3795	3860	3909	3943	3961	
CONDENSING	110		2487	2687	2879	3064	3240	3407	3565	3712	3847	3972	4083	4182	4268	4339	4395
TEMPERATURE	120				2922	3130	3331	3525	3710	3887	4054	4210	4356	4491	4613	4723	4819
deg F	130						3400	3621	3836	4043	4242	4433	4614	4785	4946	5096	5234
	140							3943	4182	4414	4640	4858	5067	5267	5458	5639	
	150									4832	5087	5336	5577	5810	6035		

CURRENT (AMPS)

EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	
80	9.9	10.6	11.3	11.8	12.3	12.8	13.1	13.4	13.7	13.9	14.1	14.2	14.2	14.3			
90	10.1	10.9	11.6	12.3	12.8	13.4	13.9	14.3	14.6	15.0	15.2	15.5	15.7	15.9			
100	10.1	11.0	11.9	12.6	13.3	13.9	14.5	15.1	15.5	16.0	16.4	16.8	17.1	17.4	17.7	18.0	
CONDENSING	110		11.1	12.0	12.9	13.7	14.4	15.1	15.8	16.4	17.0	17.5	18.0	18.5	19.0	19.4	19.8
TEMPERATURE	120				13.1	14.0	14.8	15.7	16.4	17.2	17.9	18.6	19.2	19.8	20.5	21.1	21.6
deg F	130						15.1	16.1	17.0	17.9	18.7	19.5	20.3	21.1	21.9	22.7	23.4
	140							17.5	18.5	19.5	20.4	21.4	22.3	23.3	24.2	25.1	
	150								21.2	22.4	23.5	24.6	25.7	26.8			

MASS FLOW (LB/HR)

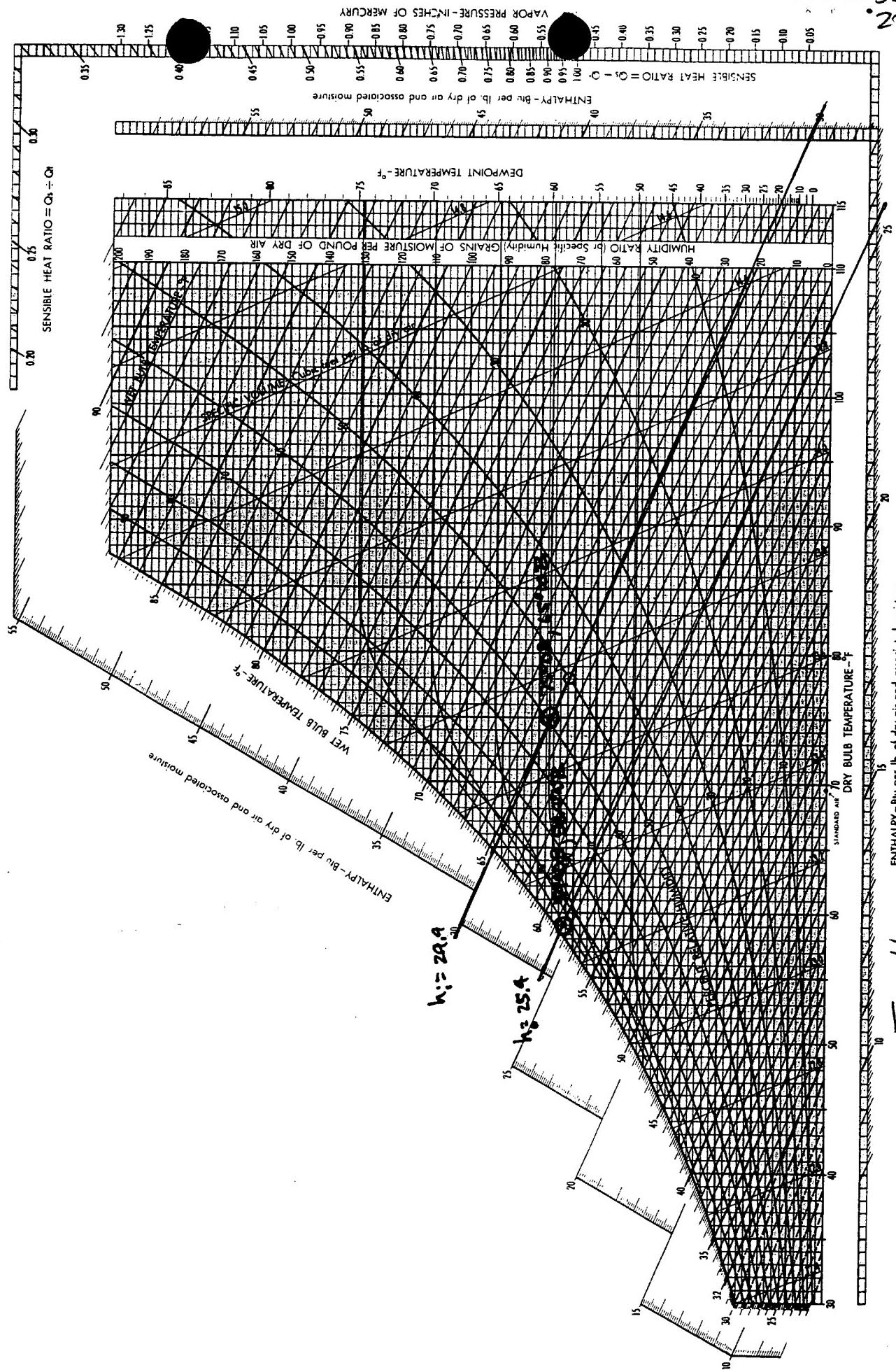
EVAPORATING TEMPERATURE, deg F

	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	
80	162.6	199.6	239.7	283.0	329.9	380.4	434.7	493.0	555.5	622.4	693.9	770.1	851.2	937.4			
90	153.9	189.5	228.3	270.4	316.1	365.5	418.8	476.2	537.9	604.0	674.7	750.2	830.7	916.4			
100	142.2	176.5	214.0	255.0	299.6	347.9	400.3	456.8	517.6	582.9	653.0	727.9	807.9	893.1	983.7	1080.0	
CONDENSING	110		161.3	197.6	237.5	281.0	328.4	379.8	435.4	495.5	560.1	629.5	703.9	783.4	868.2	958.4	1054.4
TEMPERATURE	120				218.7	261.2	307.6	358.2	413.0	472.4	536.3	605.2	679.0	758.1	842.5	932.5	1028.2
deg F	130	124.2					286.6	336.3	390.4	449.1	512.4	580.7	654.1	732.8	816.9	906.6	1002.2
	140							368.4	426.4	489.2	557.0	630.0	708.3	792.1	881.7	977.1	
	150								534.9	607.5	685.5	769.1	858.5	953.8			

Fig. 10

PSYCHROMETRIC CHART

O 1960 THE IRANE COMPANY LA CROSSE, WISCONSIN
Barometric Pressure 29.921 inches of Mercury



ET18223695845
21/8/22

BLOWER PERFORMANCE DATA

MODEL AH20

Blower Speed	S.C.F.M. at E.S.P.							
	.1	.2	.3	.4	.5	.6	.7	.8
High	2125	2100	2055	2020	1980	1930	1870	1820
Med. High	1730	1710	1695	1675	1655	1620	1600	1565
Low	1385	1375	1365	1360	1345	1290	1300	1280

Note: C.F.M. deliveries shown are with filter and coil in place.

FIG. 12

ET182236958US
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COOLING PERFORMANCE DATA																		
HEAT PUMP MODEL NUMBER:		BRHS060B																
INDOOR COIL MODEL NUMBER:		U25R60RV																
AIR TEMPERATURE ENTERING OUTDOOR UNIT																		
INDOOR AIR		75°				85°				95°				105°				
		CAPACITY MBTUH		CAPACITY MBTUH		CAPACITY MBTUH		CAPACITY MBTUH		CAPACITY MBTUH		CAPACITY MBTUH		CAPACITY MBTUH		CAPACITY MBTUH		
ID	CFM	ID	D°WB	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.	T.C.	S.C.	K.W.
1500	85/71	63.7	39.0	4.51	60.4	37.8	4.85	57.1	36.8	5.19	53.7	35.4	5.50	50.2	34.1	5.80		
	80/67	58.1	37.4	4.34	55.3	36.3	4.68	52.4	35.1	4.98	49.2	33.8	5.27	46.0	32.5	5.55		
	75/63	53.2	36.1	4.22	50.4	34.9	4.52	47.8	33.8	4.81	44.7	32.3	5.08	41.7	31.0	5.30		
	73/61	51.1	35.9	4.15	48.5	34.9	4.44	45.9	33.8	4.72	43.0	32.4	4.96	40.1	30.9	5.20		
1700	85/71	64.9	41.3	4.55	61.5	40.1	4.89	58.1	38.8	5.23	54.6	37.6	5.54	51.0	36.4	5.85		
	80/67	59.3	39.8	4.39	56.3	38.6	4.72	53.3	37.4	5.04	50.1	36.0	5.32	46.8	34.6	5.60		
	75/63	54.4	38.1	4.25	51.7	36.9	4.55	48.9	36.7	4.86	45.8	34.3	5.10	42.6	32.8	5.35		
	73/61	52.2	38.0	4.20	49.5	36.8	4.49	46.8	35.6	4.77	43.9	34.3	5.01	40.9	32.9	5.25		
1900	85/71	65.9	43.4	4.58	62.4	42.2	4.93	58.9	40.9	5.27	55.4	39.7	5.59	51.9	38.4	5.91		
	80/67	60.4	41.8	4.43	57.3	40.5	4.76	54.1	39.2	5.08	50.9	37.9	5.36	47.6	36.5	5.64		
	75/63	55.5	39.9	4.29	52.6	38.7	4.59	49.6	37.4	4.89	46.4	36.0	5.14	43.1	34.6	5.39		
	73/61	53.3	39.9	4.22	50.6	38.7	4.52	47.8	37.4	4.81	44.6	35.9	5.08	41.4	34.4	5.30		

NOTE: All capacities are net with indoor fan already deducted at 1250 BTUH / 1000 CFM.

KW rating for outdoor unit only.

Fig. 13.